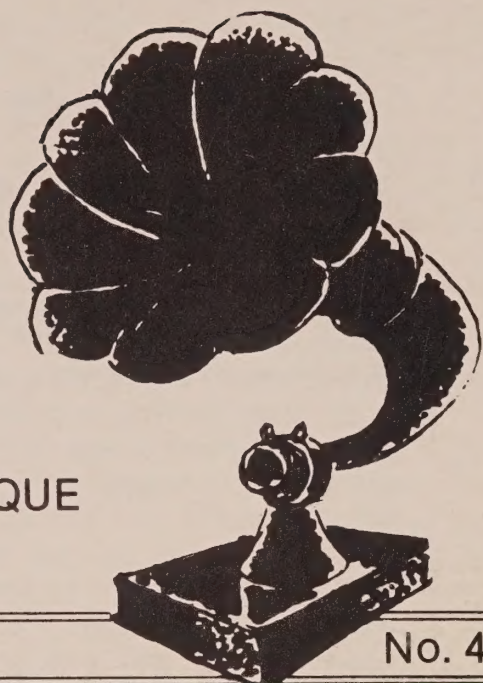


The Antique Radio Gazette

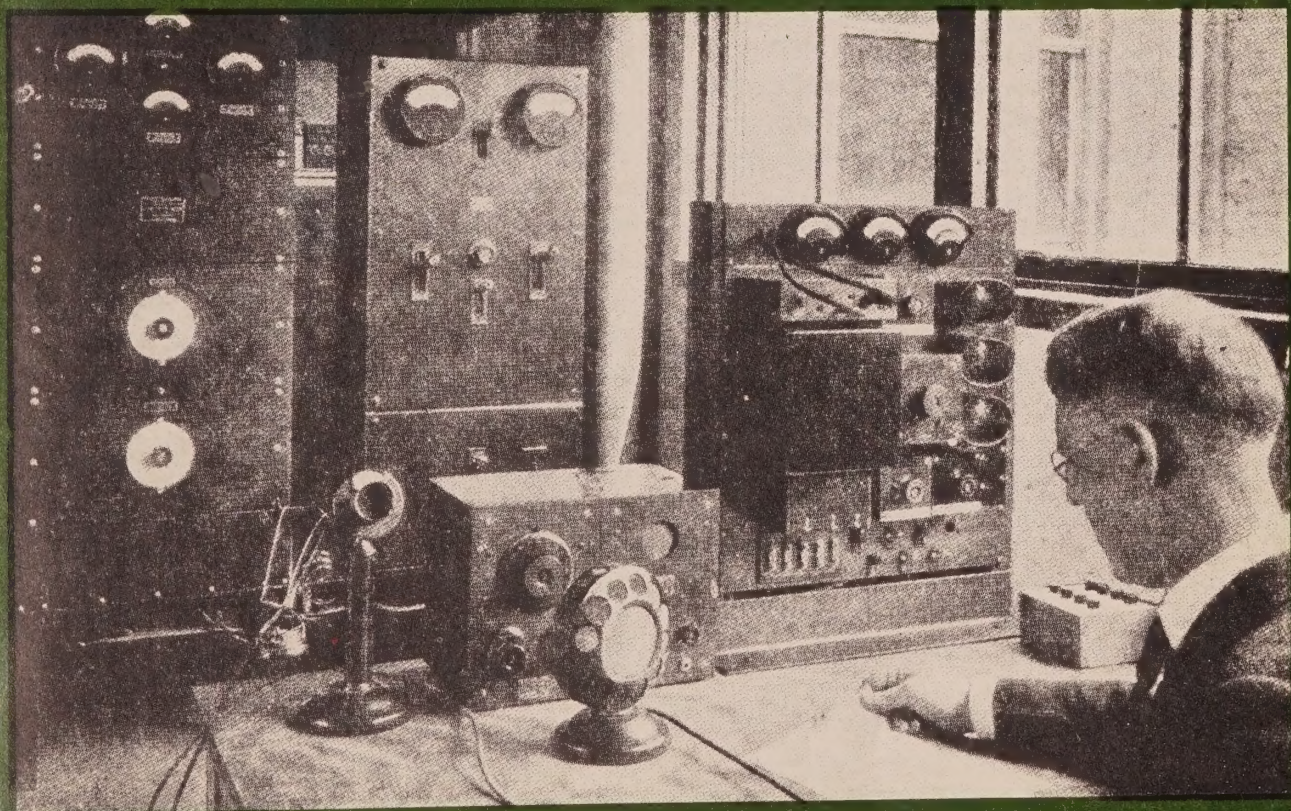
OFFICIAL PUBLICATION OF THE ANTIQUE
RADIO CLUB OF AMERICA



VOL. 11

WINTER, 1983

No. 4



Operating Room of WWJ

*Showing transmitter (rear left), power panel (rear center),
speech-current amplifier (right), and microphone (the circular
instrument with cord attached).*



Digitized by the Internet Archive
in 2025 with funding from
Amateur Radio Digital Communications, Grant 151

WWJ Detroit — “The Birth of the News”

by John E. Drake

The Detroit News was the first newspaper in the world to install a radio broadcasting station and the first to increase its social usefulness by furnishing such a service to the public. When broadcasting was inaugurated in the summer of 1920, wireless telephony, although it had reached a commercial stage and was already the hobby of a few enthusiastic experimenters, still remained a mystery to the community in general and was looked upon by many as possibly a familiar source of enjoyment to their grandchildren but of no particular present importance. This sentiment was virtually changed overnight when, in August, 1920, The Detroit News installed its first transmitting station and began its regular broadcasting.

The original apparatus consisted of a De Forest Type OT-10 transmitter on a 200 meter wave length. Its range was limited, being, under the best of conditions, not more than 100 miles; and at the time there were, approximately, only 300 operators receiving in the territory covered. The transmission set was in place ready for operation on Aug. 20, 1920, but no announcement was made to the public until a series of experimental concerts had been conducted over a period of 10 days. These concerts were enjoyed by no one except such amateurs as happened to be listening in. Everything was found to be satisfactory, and on Aug. 31, which was primary election day, it was announced that the returns, local, state and congressional, would be sent to the public that night by means of the radio.

The News on Wednesday, Sept. 1, 1920, carried the following announcement:

“The sending of the election returns by The Detroit News’ radiophone Tuesday night was fraught with romance and must go down in the history of man’s conquest of the elements as a gigantic step in his progress. In the four hours that the apparatus, set up in an out-of-the-way corner of The News Building, was hissing and whirring its message into space, few realized that a dream and a prediction had come true. The news of the world was being given forth through this invisible trumpet to the waiting crowds in the unseen market place.”

It was Aug. 31, then, which marked the beginning of radiophone broadcasting by the press as a public service. The dream of actual vocal contact between points far distant and without any tangible physical union had come true on an astonishingly large scale. The public of Detroit and its environs was made to realize that what had been a laboratory curiosity was to become a commonplace of everyday life, and that the future held extraordinary developments which would affect all society.

At first the concerts were confined entirely to phonograph music. Two programs were broadcast daily — one at 11:30 a.m. and the other at 7 p.m. — and after a time, speakers and singers were occasionally obtained to entertain the invisible audience.

Soon reports began coming in from outlying communities that the concerts were being successfully received and enthusiastically enjoyed. The radio had become such a familiar affair in so short a space of time that it seemed odd to consider how remarkable the news was regarded

at the time. The thing from the first held the element of magic. The local receiving set became the center of wondering interest in the little suburban towns. The interest grew and dealers reported a demand for radio materials.

Then the Steamer W. A. Bradley reported through the Marconi station at Ecorse, near Detroit on the west, that the music of a concert had been received on the vessel as

she steamed along through the night in the middle of Lake St. Clair. This, somehow, impressed the public as even more remarkable than sending the music over land although, of course, it was not. But the idea of a ship so far off from land actually hearing the words spoken and the music played in a little room of a building in a large city seemed a peculiarly significant demonstration of the victory over



When a sleet storm smote Lower Michigan in the early spring of 1922, and telephone and telegraph wires everywhere broke under their burden of ice, the radiophone was the salvation of many state newspapers. The Associated Press and other news agencies were offered the use of Station WWJ, and for the first time the press received its state, national and foreign dispatches by radio. The illustration shows David J. Wilkie, correspondent of the "A.P.," and clippings from some of the newspapers which availed themselves of the facilities of The News.

distance and darkness.

During the first week of broadcasting a party at the home of C. F. Hammond, 700 Parker Avenue, Detroit, danced to music sent out by the News apparatus and this was considered the local beginning of the social aspect of wireless telephony.

The man in the street, traditionally skeptical, was impressed when, in October, 1920, the results of the World Series baseball game between Cleveland and Brooklyn were instantly sent out to the waiting baseball fans. The first returns of a national election ever broadcast were given by The News in November of the same year, when hundreds of partisan voters held receivers to their ears and were informed by the voice through the ether that Harding had rolled up an enormous majority over Cox.

When Christmas season came around in 1920, the number of radio amateurs had greatly increased in Detroit and the surrounding communities. Small boys were becoming enthusiasts and Santa Claus remembered a great many with receiving sets, thus adding members to The News' radio family. Special holiday music, appropriate to the season, was broadcast.

On New Year's Day of 1921 The News said:

"For the first time, as far as known, a human voice singing a New Year's melody of cheer went out across uncounted miles over the invisible ether that is the medium of the wireless telephone when Louis Colombo, Detroit attorney and famous baritone, sent his resonant tones into the mouthpiece at the office of The Detroit News at midnight, Friday."

And a great achievement was considered to have been performed when those in attendance at a banquet at the Masonic Temple heard a concert received at the banquet hall by means of a three-wire aerial strung along the ceiling.

By this time the original transmitting set in the News station was found to be inadequate for the increasing requirements and it was almost entirely rebuilt. In the following June a two-wire antenna, 290 feet in length, was stretched between The News Building and the Hotel Fort Shelby. Soon reports began to come in that The News' concerts were being heard plainly from great distances. Belleville, Ill., sent word that the concerts were enjoyed there, and Atlanta, Ga., delighted the News operators by announcing that the broadcasting was carrying successfully to that "distant place." Meantime, The News' receiving set was catching wireless telegraph messages from remote radio stations, including the U.S. Navy station at Bordeaux, France, and stations in Nauen, Germany, Rome and Hawaii.

The Detroit News decided to organize its programs on a more elaborate scale. These had previously been restricted, principally to phonograph music and news bulletins, but now musicians were added and theatrical talent booked from Detroit playhouses.

So it went until the end of 1921. By this time the radio department demanded the entire time of a radio-phone editor and two technical men. From then on the station expanded its operation with more advanced equipment and greatly increased staff.



"This Is WWJ — The Detroit News."

A Visit to the Vacuum Tube Exhibit at Manhattan College

by

Jack M. Davis, Television Editor

On a sunny Friday afternoon in mid-November, John Drake and I were having lunch in White Plains and discussing the suggestion that ARCA should acquire a museum, much as AWA has in Canandaigua. Both of us feel that such an idea has much merit and that it would add immeasurably to the prestige of the Club as well as provide a future home for any items that our members would like to share with a wider audience.

I mentioned to John that I had been in touch with Brother Pat Dowd (W2CK), a fellow ARCA member who has been devoting the past few years to putting together a vacuum tube exhibit at Manhattan College, located just north of Van Cortland Park in the northern tip of New York City. Neither of us had seen the result of Brother Pat's labor of love, so inasmuch as we both had the afternoon off and I had in my possession a set of very complete "how to get there" instructions furnished by Brother Pat, we decided to drive down to see the exhibit.

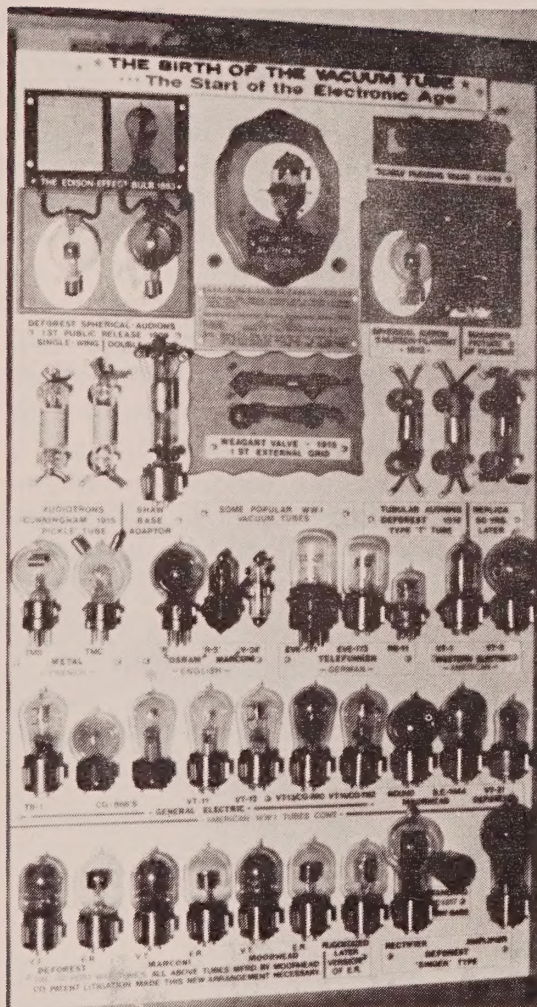
We found the campus without difficulty as it is directly off the Van Cortland South exit of the Major Deegan Expressway (Interstate 87) which is an extension of the New York State Thruway. A very attractive co-ed showed us where the Engineering Library was located and we went up to the third floor where the exhibit was on view. We had called Brother Pat to tell him that we were going and as we entered, we were greeted by the gentleman in charge who Brother Pat had called to tell of our visit. His name was Dick Barry and he was very interested in Brother Pat's exhibit because of his own experience in early electronics and early radar during

wartime. Dick is also into ham radio, having just gotten his novice ticket and hopefully, he will become an ARCA member. Dick was most helpful in explaining the exhibit to us and pointed out the types that were in the radar set at Pearl Harbor when it was warned, to no avail, of the forthcoming attack.

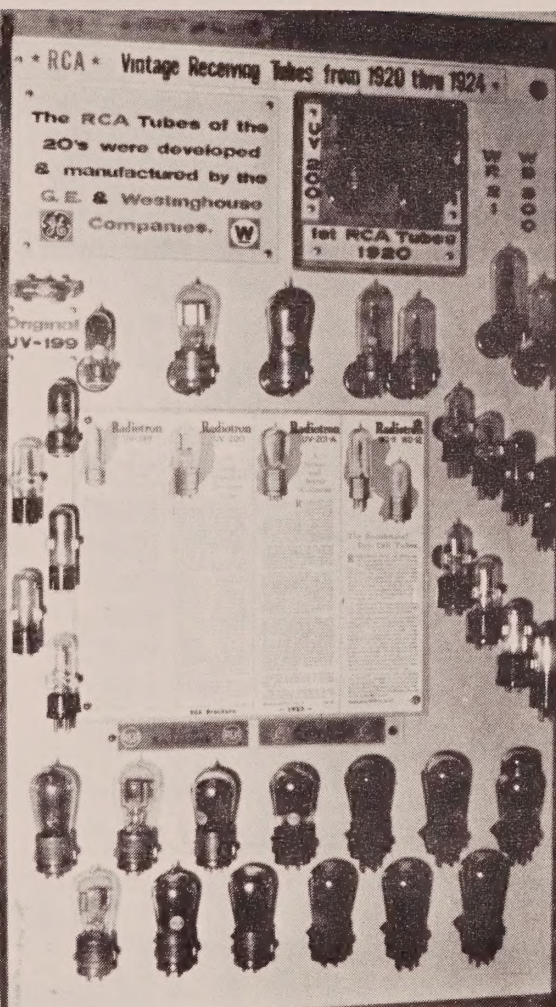
Once we were inside the Library, we were greeted with dozens of display cases that lined the walls of the room. Starting with the very birth of the vacuum tube, we saw samples of and in some cases the actual tubes dating from the dawn of the vacuum tube age to the present time. The first cases were of particular interest as we were treated to seeing such rarities as an early "Fleming Valve," pre-patent DeForest Audion, DeForest Sphericals, many of the WW I vacuum tubes, Weagant Valves, foreign tubes of the era, early tubulars and just about everything that was developed or thought of between 1906 and 1920.

Case after case took us through the ensuing years. One case was all of Western Electric, one for GE, three for RCA, another that showed over 50 different types of 201's and so on through the '30's and '40's, including all of the hundreds of types that literally exploded onto the scene from the late '20's on.

In this exhibit, there is something for everyone who is interested in antique radio. There are panels devoted to the development and manufacture of metal tubes, nuvistors, rectifiers, transmitting tubes, Gammatrons, and Eimacs and all of these panels have only the finest examples that Brother Pat has so painstakingly found and restored. Each panel has accompanying text



Panel #1 — The Birth of the Vacuum Tube and Early History. (1906-1920)



First RCA Tubes (1920-1924)

so that one is treated to a thorough exposition of each item's significance and, in many cases, there is a step-by-step detail from development to manufacture that is completely fascinating to anyone who shares our interest in the contributions to the electronic age that vacuum tubes have made.

John and I left after a pleasant couple of hours and we certainly expect to go back for another visit. Brother Pat is currently expanding his display (I hope he doesn't run out of wall space) to include the development of Cathode Ray tubes, both transmitting and receiving,

that will take us from the Farnsworth Dissector to the present time and which will be as thorough and in-depth as the rest of the exhibit.

This was a wonderful afternoon and we recommend it to everyone. Brother Pat has a complete set of directions on how to get there and would be delighted to send them to you. If possible, he will also endeavor to be present when you visit, so why not contact him? He can be reached by phone at either his residence which is (201) 447-2717, or at the Paramus Catholic Boys' High School, Paramus, N.J. 07652 — telephone (201) 445-6465.



*General View of the front of the Reading Room of the Manhattan College
(N.Y.C.) Engineering Library*

A Message From the President Elect

by
Jim Troe

It is a real honor to have been elected president of ARCA, for 1984. I hope that I can maintain the quality of leadership shown by John Drake and the earlier presidents.

I think that there is much we can all do to make ARCA an even more useful organization for the members. Increased membership will permit an increased size Gazette and other member services. Therefore, your two new vice presidents (Lloyd McIntyre and Joe Willis) and I have set a goal to significantly increase the membership in 1984. Each member can help, of course, by making our club known to prospective members and encouraging their joining. Applications can be obtained from Bill and Jane Denk (81 Steeplechase Road, Devon, PA 19333), or xerox an application form.

John Drake will continue as editor of the Gazette. He and Ruth have been doing a superb job. I think our Gazette is becoming the best in the world. But, John too needs your help. He needs a continuing flow of material. New authors with new stories are needed. Major stories on radio history are most welcome. Also stories on set restoration, lucky finds, collecting ideas, company histories, etc. are needed. Don't worry that you can't write well. The editors will handle that.

It's not too early to start planning to attend the 1984 national convention, to be held at the Holiday Inn in Elgin, Illinois, on June 21-23. The convention will be hosted by the "RADIOFEST 84" group. Discount rooms are now available at the Holiday Inn. Details can be obtained from Joe Willis, 525 Oakdale, Chicago, Illinois 60657. Joe and the group are planning an outstanding meet. Let's have a big ARCA turnout!

Our Newest Members

William A. Smith, Cumberland, MD
Henry H. Brazeal, Jr.,
Birmingham, AL

George F. Hamner, Jr., Fairfax, VA
David T. Walters, Cresaptown, MD
Frank Pagano, Meriden, CT
Thomas Estes, Houston, TX
Gary E. Householder, Dunbar, WV
John J. Nagle, Herndon, VA
KCBS Radio, San Francisco, CA
Larry Flegle, Roswell, GA
Michael Berner, Edwardsville, IL
Atwell B. Chance, Pennsville, NJ
Kaye Weedon,

Blommenholm, Norway
Hans Weedon, Salem, MA
Stephen J. Raiche, Albany, NY
Dale Parsons, Cross Lanes, WV
Joseph B. Cosgriff III,
West Chester, PA

John Sideli, Malden Bridge, NY
Randy Joe Lee, Acworth, GA
Walter M. White, El Paso, TX
Vernon F. Clifford, Amityville, NY
William P. Heck, St. Paul, MN
Hugh Miller, Seattle, WA

Reinstated:

Ernie Jacobs, St. Albans, WV
Allen Marcovitch,
Palm Beach Shores, FL

NOTICES

DUES

All those who have not paid their dues for the calendar year 1984, your \$10* is payable Jan. 1, 1984 to ARCA, 81 Steeplechase Rd., Devon, PA 19333.

Membership cards will be sent with first Gazette following receipt of your dues. (This saves us postage. Thank you!)

*U.S. dollars in Canada and Mexico, please. Other foreign countries, \$12 U.S. currency.

New Things In Radio — 1934

by
J. A. Moore

The September, 1934, issue of Radio News gave a brief description of some new radio devices that had been developed by American Engineers.

Freed Eisemann portable radios, Models 406 and 432, were designed for marine use. One model was for boats with a 32 Volt power supply and the other for boats having a 6 Volt power supply. These portables were enclosed in a waterproof carrying case.

The International Kadette, Model ES-20, made its appearance. It was a Universal A.C.-D.C. dual wave receiver covering the broadcast band and shortwave from 18 to 55 meters.

G. M. Laboratories announced a weatherproof photoelectric relay for outdoor use.

The most eye-catching new thing in radio was an item about a Ford Auto Radio. A picture was shown of an attractive young lady sitting in a new Ford tuning the radio while looking at the camera with an engaging smile. To digress a moment, I recall many attractive young ladies with engaging smiles at about that time, I then being 19 years old, and was observant of such things. To continue, the caption of the picture reads: *No Joking — It's A Ford Auto Radio!*

A new type radio receiver has been developed for Ford V-8 cars. It is a six-tube superheterodyne, self-powered with a dynamic speaker, and features base compensation. These pieces of equipment are now very near 50 years old and would be appropriate additions to a collection of Antique Radio.

In Radio News, I noticed the ads for home study in repairing radios, jobs in broadcasting, etc. It seems

the most glowing promises of high income fall far short of today's government defined poverty level. National Radio Institute was headlining — Make \$40, \$60, \$75 a week. My earnings in 1935 were \$22.50 per week and I felt at that time that I had the world by the tail pulling downhill. So the prospect of such earnings as noted by NRI was reaching for the stars. So much for the Good Old Days — and they really were for me. I was working full time, liked my job, was driving a 1929 Oakland All American Six, two toned automobile, and started on a honeymoon that is still going on.

Two Historic Reprints

by
Jim Troe

Radio Electronics magazine has recently reprinted two old items. The first is a reprint of the 176-page Electro Importing Co. catalog No. 20 of 1918. It is a fine quality reprint, and is available for \$5.95 postpaid from R-E Bookstore, Radio Electronics, 200 Park Avenue South, New York, New York 10003.

The second is a reprint of the first publication ever produced by Gernsback — "Modern Electronics," Vol. 1, No. 1, April 1908. This is also a fine quality reprint, and is available from the above address for \$3.25 postpaid.

There are 11½ pages (8"x11") of 'firsts' about early television, including pictures of early Baird receivers and German apparatus in "The Book of Firsts" by Patrick Robertson, © 1974, Bramhall House, distributed by Crown Pub., N.Y. (Available from Pub. Central Bureau, for one place, @ \$6.98, 1 Champion Ave., Avenel, N.J. 07001. Also 'firsts' to do with radio.)

Radio Pioneer Enters Inventors Hall of Fame

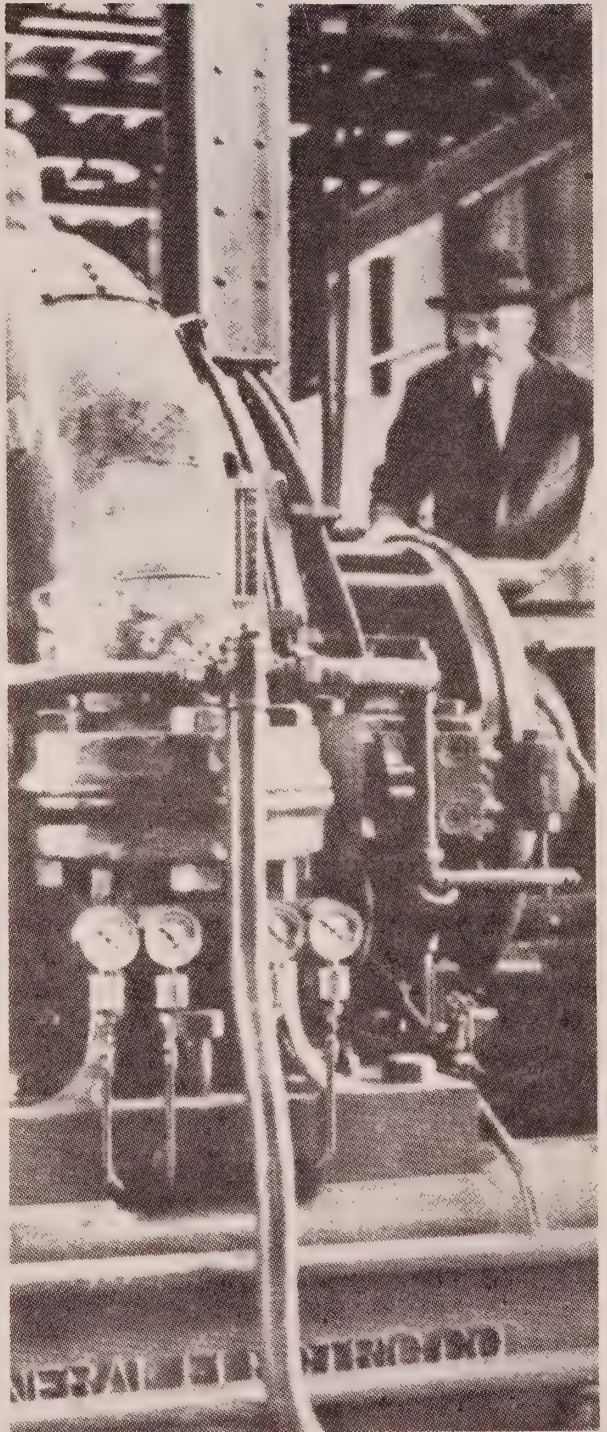
Ernst F. W. Alexanderson, developer of the high-frequency alternator that made trans-Atlantic communication practical, has been inducted into the National Inventors Hall of Fame in Arlington, VA. At the induction ceremony, the U.S. Commissioner of Patents dedicated an exhibit and presented a plaque to his widow, Mrs. Thyra Alexanderson.

The alternator displaced spark and the arc in high-power communications and ruled the airwaves until tube transmitters were developed.

Dr. Alexanderson was a pioneer in other fields. In 1924 he transmitted the first facsimile message across the Atlantic. In 1927 he staged the first test of home-TV reception (using high-frequency neon lamps and a perforated scanning disc) at his own home in Schenectady, NY.

He was also a pioneer and early inventor and designer in high-voltage power transmission. In all he obtained 322 patents during his long career with General Electric, making him the company's most prolific inventor.

This honor is by no means Dr. Alexanderson's first. He has received many, including the Gold Medal of the Institute of Radio Engineers in 1919, The Edison Medal from the American Institute of Electrical Engineers in 1944, and the Royal Danish Medal in 1946.



Dr. Alex Anderson inspects one of the high-frequency alternators used to transmit from Rocky Point, Long Island, to Europe. The picture was taken in 1922.

The Early Radio Industry of Northern New Jersey

This series on the old-time radio companies of the Boonton, N.J. area was started in the Spring 1983 (Vol. 11, No. 1) issue of the Gazette.* However, due to an editorial oversight, the first chapter in the history was omitted. The history, therefore, starts with this issue.

The molding of vulcanized asbestos and the development of radio circuits may seem to be entirely dissociated activities, but it was in a tiny molding department of the Lando Hard Rubber Company that Boonton's world-renowned electronic industries first began. Today these companies, Radio Frequency Laboratories, Boonton Radio Corporation, Ballantine Laboratories, Measurements Corporation, Aircraft Radio Corporation and Ferris Instrument Corporation, are known wherever precision instruments are used.

For many years since the turn of the century, Richard W. Seabury had been engaged in the development of molding processes for bakelite as a licensee under the patents of Dr. Leo H. Baekeland. Mr. Seabury's concern produced a great variety of molded parts including many pieces for electrical equipment.

Business was thriving and the future looked very bright as an enterprising new industry, radio broadcasting, was sweeping the nation. There were big demands for moldings of coil forms and many of the parts that were used in early radio sets but it was soon discovered that material which was satisfactory for

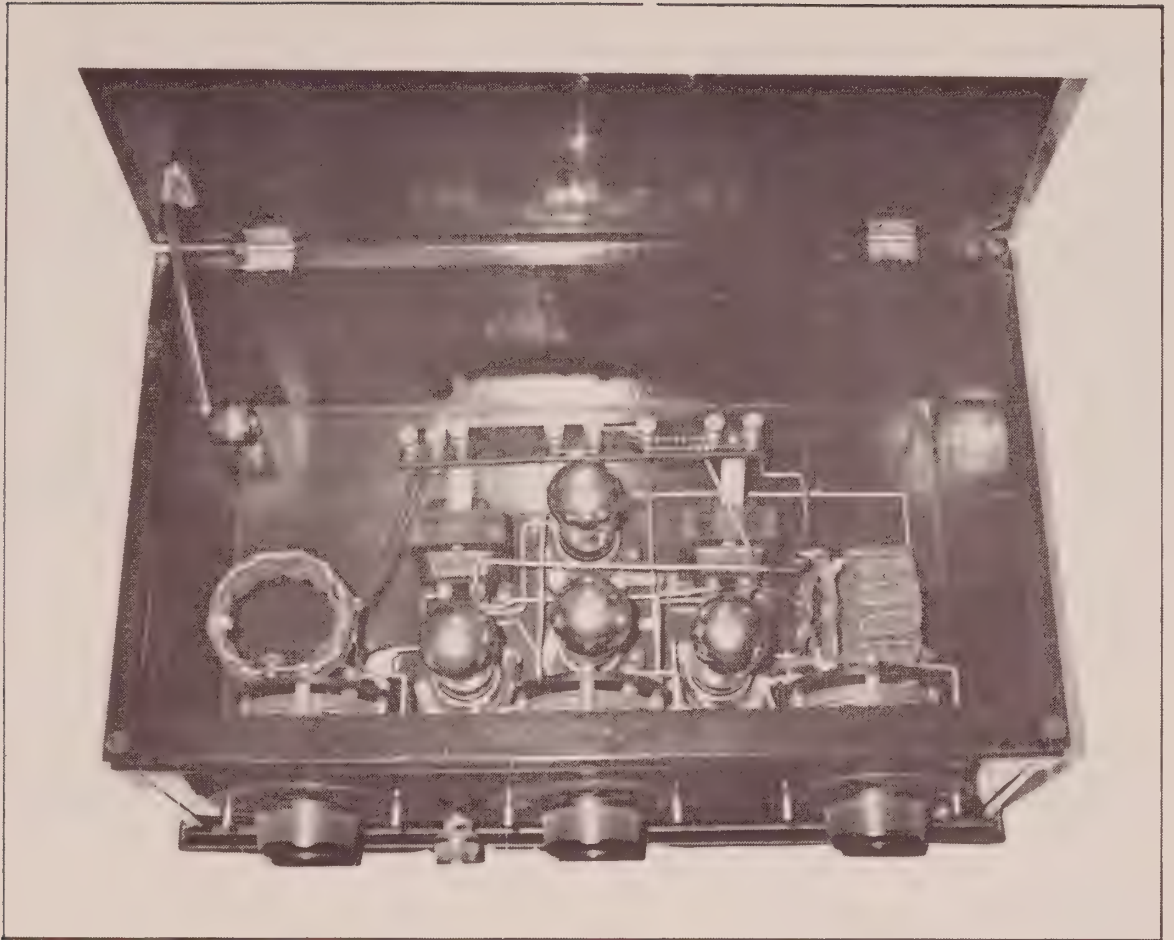
ordinary electrical use was a poor insulator at radio frequencies. To solve the problem and thus meet the requirements of his customers, Mr. Seabury engaged a competent radio engineer, Dr. Lewis M. Hull, who years later was to become president of Aircraft Radio Corporation.

Dr. Hull and associates, while working on various molding materials, had to devise new electronic devices for test purposes. In doing so, their creative minds brought forth circuits that were innovations to the art and the radio industry deluged them with new technical problems to solve. Thus a modest molding plant had spawned a highly technical new enterprise that in 1922 became known as Radio Frequency Laboratories (familiarily known to radio men as RFL).

Other financial backers obtained interests in the firm, including Dr. Edward Weston, of instrument fame, the late Valentine B. Havens and Clinton P. Townsend, noted attorneys. Additional radio engineers were engaged, one of these being Stuart Ballantine who, until his death in 1944, was to make some of the most important contributions to radio that the half-century was to witness. Another capable engineer who joined this group was William D. Loughlin who held the office of president of RFL from 1930 to 1934 when he established his own company, the Boonton Radio Corporation.

RFL developments included amplifier circuits, a single-control broadcast receiver, automatic volume control and many other improvements which, after being patented, continued on page 12

*Originally published in "The Citizen," 30 June 1950 under financial sponsorship of Measurements Corporation.



The Model 401 Tuska Receiver is the only TRF variety known.



were licensed to such companies as Stromberg-Carlson, Crosley Radio Corporation, American Bosch, National Carbon Company, Kellogg Switchboard & Supply Company, Sangamo Electric Company, Grigsby-Grunow and De Forest Radio of Canada. Many readers will recall the purchase of a "Majestic" radio set, one of the popular early makes which featured the RFL single-control tuner.

Associated with Mr. Seabury, besides Hull, Ballantine and Loughlin, were other skilled radio engineers who later became prominent in the electronic industry. Two of these men, Malcolm Ferris and Harold Snow, played an important part in an enterprise that was soon to expand and develop into several different concerns, each specializing in some particular phase of the electronic art.

CONTEST RESULTS — AWA CONFERENCE, Canandaigua, 1983

Class I. Crystal Receivers

First	Jim & Felicia Kreuzer	Mignon Tuner + Wireless Specialty Detector
Second	Lauren Peckham	Mignon Tuner + Crystal Detector
Third	Jim Barrows	Revaphone

Class II. Regenerative Receivers (before 1922)

First	Lauren Peckham	Marconi Type 120, Serial #1
Second	Mel Rosenthal	Cutting & Washington, Type 12
Third	Charles Brunnelson	Marconi Type 122

Class III. Regenerative Receivers (after 1922)

First	Max deHenseler	Three Volksempfanger receivers + display items
Second	Robert Lozier	Radiola IV
Second	Lloyd McIntyre	Copper-clad Special
Third	Ralph Muchow	Radioshop Special
Honorable Mention	Henry E. Wenden	Siren Receiver (English)
Honorable Mention	Sid Prior	Canadian Independent Telephone

Class IV. Tuned Radio Frequency Receivers

First	Larry Wright	Vocaphone 41A (John Firth Co.)
Second	Mike Batsch	Northern Electric Mod R-2
Third	Ed Taylor	Entertain-A-Phone
Third	Sid Prior	English Osram with packing carton

Class V. Superheterodynes

First	Larry Wright	Leutz C-10
Second	John Milton Williams	Spartan Bluebird
Third	Charles Bradley	USL "Battery" Radio

Class VI. Tubes (1920-1940)

First	Alan Douglas	Display of Miniature Tubes
Second	Kenneth McIntosh	Iconoscope
Third	Bob Millard	Cathode Ray FM Generator

Class VII. Spark Transmitters

First	William Holly	½KW 1920 Rotary
Second	Don Whittemore	Breadboard with parts

Class VIII. Tube Transmitters

First	Fran Thisse	1923 UV 202 Hartley
Second	Wes Chatellier	1928 Hartley
Third	John Williamson	Replica 1921

Class IX. Commercial Receivers

First	Ralph Muchow	RCA Stratosphere Altitude- Record Balloon Flight Display
Second	Chet Wisner	Dane Radio Compass
Third	John C. Weisner	HRO Canadian

Class X. Amateur Receivers

First	John Wiesner	1936 Typical Homemade Regen
Second	Bill Hurni	Replica 1BGF Tuner

Best In Show

Ralph Muchow	RCA Stratosphere Altitude- Record Balloon Flight Display
--------------	---

Matlack Award

Bill Hurni	Replica UV 202 Hartley
------------	------------------------



MEL'S CORNER

Greetings! We are about to enter another successful year in this ever growing ARCA organization whose membership covers coast to coast and overseas as well.

Great time was had by all who attended the big combined meet of the year with ARCA and the Antique Wireless Association at Canandaigua, New York. Collectors and historians came in from everywhere including a number from overseas. There were some excellent papers presented at various sessions along with a most remarkable display of early equipment in the contest/awards display room following the presentation of ribbons at the annual banquet.

A most outstanding feature this year was the operation of four big spark transmitters — with rotary spark gaps singing away! Spaced in the four corners of the banquet room, messages went back and forth at a merry clip. The thrill of seeing one of these old-time spark transmitters in actual operation is something one never forgets.

Some sixty years ago you could see the hams pounding those big brass keys, with the crash of blue flames lighting up the radio shack and flaming away! On cold winter nights, with ice on the wires of the big four-wire flat top antennas, the weird blue corona at the insulators caused many a pedestrian to stop and wonder.

The neighbors for miles around used to cuss these guys while trying to get their cat's whisker crystal set

on the right spot. Consider the frustrated guy who just managed to pick up his first \$6.00 audio and nailed a "one-tuber" together in high hopes of hearing an actual voice transmission from old KDKA. Headphones clamped right to the ears, straining every muscle to hear a faint voice, when suddenly comes this — CRASH — CRASH — of a big spark set!

Some of these spark sets were mighty broad in frequency, depending on location. If you lived near a big Government installation — forget it!

It was not uncommon in those days for some irate neighbor to come pounding on the ham's door with fire in his eyes!

The woes of a spark transmitter were many. "Kick-Backs" — when the RF and arcs would push thousands of volts back into the 110 volt feed line. Wall outlet sockets start smoking — oil burners — lights — fuses — etc. It always hit the weak spots in house wiring. POW!! — ZAPP!!

The prevailing smell of ozone in these ham shacks added to the glory, especially if the ham was pounding away on a full kilowatt Thordarson transformer.

It was a sad day when some of those dedicated old spark hams had to give in to the "tweeks and birdies" of CW transmission. However, the hundreds of miles of spark DX turned into the many thousands of miles of CW — DX — with the advent of CW and silent tubes. The conversion was on then and the rotary gaps and components were relegated to the attic. Gone — but not forgotten.

In the late twenties, old-time spark operators would be sitting and twirling dials, listening to the birdies of CW — when suddenly they would jump out of their chairs at the sound of some old foreign tramp steamer coming up the coast — pounding away on spark!!

CHAPTER NEWS

News From The Charleston, W.Va. Chapter of ARCA

Tom Resler, Vice-President of our Chapter, has agreed to provide space in his electronic shop for us to display and sell club merchandise. Member Jeff Bourne has re-conditioned a display cabinet to hold our sales materials. We expect to do a good business as Tom's shop is in a good area in Charleston and his business attracts considerable traffic. He and his employees will service our customers.

At our last two meetings we have been discussing the formation of local chapters in surrounding states. We feel ARCA could double its membership by the formation of local chapters in these states which have a few present members of ARCA living in the same area.

President McIntyre acquired an AK10 Breadboard and is farming parts of it out to members to restore. Its condition is such that the first impulse was to throw it in the trash can; however, the collector's urge prevailed and we will attempt to restore it for the club.

Our last four regular meetings were held at members' homes. One meeting was a family picnic at President Lloyd McIntyre's home, and the other three were at members Carl Wilson, Tom Resler, and the writer's homes.

The most recent meeting was at my place and included a visit across the street to Dr. Barnards home museum. The Barnards have a most interesting display of memorabilia of the late 1800's to the early part of this century.

As I have limited space and I cannot resist accumulating more than I have room for, I decided to have a flea market of my surplus treasures when the members met here. I did a

land office business and when the evening was over very little merchandise remained. I found the key to really moving flea market items is to advertise. I had a sign on the table which read: *FREE! HELP YOURSELF.*

Our last meeting in 1983 will be a Christmas Banquet at a local Steak House.

J. A. Moore,
Editor/Reporter

MEL'S

CORNER continued

Very little of the old spark gear shows up at our meets these days. It is a rare occasion to see even one in actual operation — of course with NO ANTENNA! The AWA Museum at East Bloomfield, N.Y., features a number of these early working spark rigs which are a real thrill to see. Just a note of warning to collectors — you must *definitely* know what you are doing if you ever attempt to fire up one of these old rigs!!

Enough of sparks for this issue. The real sweetheart of listening was the super high-frequency "birdie" of the Arc xmtr. A sound short lived — and long forgotten!

HAPPY SPARKING!!!

Pe Old Swap Shop

All ads and Swap Shop items are printed in the Gazette free of charge. We do ask that you write your ad on a separate sheet of paper, type if possible, or print, and be sure to include your name and address. We reserve the right to edit all ads. ARCA is not responsible for any transactions, of course.

WANTED: To complete Scott restorations: AC10, AM/FM Phantom & two dial 12 speakers. Knobs and escutcheons for AM/FM Phantom, Masterpiece and 16A Metropolitan, power supply for shield grid Nine. Also looking for 1928 or 1929 Remler Infradyne and toy steam engines. Trade or cash.

Don Johnson, RR1, Box 218-A, Windfall, IN 46076

WANTED: Radiola UZ1320, Magnavox R3, Radiola Vocarola, 4 WD11's, Leutz Model C, Radiola Re AR, Freed Eiseman FE 15, Amplion AR 19, and AR111 drivers.

FOR SALE OR TRADE: Zenith 3R.

Eddy Clement, 6585 Viau, Montreal, HiT2Y8, P.Q., Canada

WANTED: Military radio equipment, especially Japanese and German WW2 gear, U.K. types #18, 21, 22, 48, Canadian AR-6. Also USA non-FM gear up through 1950's.

Hugh Miller, 11206-1NE, Seattle, WA 98125

WANTED: Grebe CR-18 with or without the coils. Please state condition.

Jack Wallace, 5516 Gilbow Avenue, River Oaks, TX 76114

WANTED: Atwater Kent speaker to match table model #42.

M. B. Gaskins, P.O. Box 66, Campbellsville, KY 42718

WANTED: Owner's Instruction Manual for Atwater Kent Model 20. Original or good copy.

David P. Preston, 1911 Pike Drive, Apt. #202, Madison, WI 53713

WANTED: McCulloch AC tubes for a Cleartone, Series 110 and base only for 14" Magnavox bell speaker.

FOR TRADE OR SALE: Speaker reconing service for dynamic and electro dynamic speakers. All field coils must be good.

Hank Brazeal, 545 Shades Crest Road, Birmingham, AL 35226

FOR SALE: 1923 Grebe CR-12 (excellent, working); Precision Apparatus Co. tube tester #915; Rider Radio Manual VII.

Dick Doremus, RFD 3, Box 85, Newport, NH 03773

FOR SALE: Authentic replica parts for battery and electric sets. Knobs — dials — pushbuttons — escutcheons. Some items stocked — others custom made from your sample. SASE for flyer.

Keith Parry, 17557 Horace Street, Granada Hills, CA 91344

WANTED: AK Model 9. Regenoflex cabinet or Junker Regenoflex. De Forest XTAL set — De Forest D-10 chassis. Radiola Grand — Radiola VII or VII-B — also a IX. De Forest D-17 — AK type R horn, AK 20 de luxe. Raymond Thompson, 7422 Cherry Tree Drive, Fulton, MD 20759

GAZETTE ADS ARE FREE! Circulation is great. Why not take advantage to clear out the surplus — send them in now!

Mel Comer, 205 Roberts Road, Ardmore, PA 19003

WANTED: National variable condenser as used in National SW-5. Any help locating this item will be greatly appreciated.

Robert Herbig, 4178 Chasin Street, Oceanside, CA 92054

FOR SALE: FADA Model R-60, fine cabinet, \$65. Radiola 20, very good condition, \$75. Radiola Model 60, \$35. Riders perpetual trouble-shooters manuals — volumes one to nineteen with duplicates — totaling 24 volumes all together. Eight volumes of Rider TV manual from one to eight. Buyer takes all Riders volumes for \$150 or make offer. Gernsbacks Encyclopedia 1927, \$12. Eight International textbooks — small on radio/mechanics, \$30. Thirteen magazines — miscellaneous Radio News — Short Wave Craft & Radio — Scott News — Radio World — 1933-1935 — \$35 for all.

Darell F. Brehm, c/o McCoy Electronics, P.O. Box B, Mount Holley Springs, PA 17065. Tel. (717) 486-3411.

WANTED: AK Models 12, 21, 24, 36 and 50 — will buy or trade. Trade items are Federal DX-58 — Stromberg Carlson 1A — Philco 90 — Gecophone II crystal set — De Forest/Crosley 51 and 52. All in good condition. Have Leutz C-7 and Murdoch M-26 — both need wiring, but clean and complete. Square bus wire supplied.

Fred Creed, Apt. 503, 283 Fairway North, Kitchner, Ontario, Canada N2A-2P1

FOR SALE OR TRADE: Hundreds of tubes from 30's and 40's, \$1 each. 01-A's at \$4 each — lots of parts on hand. Send SASE for list.

WANTED: Early light bulbs — Audions — early tubes such as WR-21, etc. — buy or trade.

Bruce Harbeck, 13408 Westwood Lane, Omaha, NB 68144

FOR SALE: Two early Pilot TV sets — 3" screen — both working order — reasonable.

George Rice, 402 Earlington Road, Havertown, PA 19083. Tel: (215) 449-5045.

WANTED: Atwater Kent detector and one stage amp for use on an AK-12. State price and condition.

Dave Leroux, 339 E. So. Boundary, Perrysburg, OH 43551

WANTED: Grebe RORD with rheostats front panel. Also looking for Grebe CR-6 or CR-7 and very early Crosley items and parts. John Firth components or sets.

Larry Wright, 131 Hilltop Drive, Lake in the Hills, IL 60102

FOR SALE: Several Grebe sets — IP-500 and IP-501 — Federals — Crosleys — Leutz and others. Send SASE for list and details. Will trade Grebe CR-18 or CR-8 for Radio Shop Sunnysvale items.

Paul Giganti, 2429 San Carlos Avenue, San Carlos, CA 94070. Tel. (415) 593-4723.

FOR SALE: Radiola III, \$65. Freshman AC set, \$40. AK 40 with Peerless speaker, \$45. AK 20-C, \$45. Brunswick cath spkr, \$30. RCA — R5 — Cathedral, \$75. Thompson Horn, \$40. AK 32, \$50. Philco 89 Cathedral, \$80. Silvertone mod 1919, \$48 w/tubes. Philco 39-6015, \$20 w/tubes. Silvertone 1923 — Tombstone, 28. Crosley 51, \$75. Enjay-

Farm set, \$20 w/tubes. W.E. amp mod 7-A, \$65. Philco TV-50-T-1400, \$50. RCA 100-B spkr, \$12.

WANTED: AK rcvrs — 558, 165, 217, 708, 206, 944, 145. Also driver and base for Madera clear horn. Send SASE for details all above.

Gary Hill, 1507 Ridge Avenue, New Castle, PA 16101. Tel. (412) 654-9335.

WANTED: Grebe detector/amplifier with front panel rheostats. Have some nice items for trade or will pay cash for this Grebe.

James R. Collings, 12005 Victoria Place, Oklahoma City, OK 73120

FOR SALE: Aeriola amp, works, \$130. 1935 Eilen Comm. Rcvr. plug in coils, works, mint, airplane dial, \$46. Black varnished spaghetti tubing, \$1.65 ppd. for 6 ft. SASE for sample. WANTED: Aeriola Jr., Philco Model 16B cathedral. Factory produced crystal sets.

Andrew Mooradian, 5 Priscilla Lane, Winchester, MA 01890

FOR TRADE: Very good Grebe CR-9 SN815 plus excellent Federal 110 + for IP501A or other Wireless Specialty equipment of equal value.

Richard Groshong, 6604 Kent Drive, N.E., Cedar Rapids, IA 52402

FOR SALE: Radiola III & IIIA, 17, 33; Grebe MU syncrophase, Kolster 6D, K20, Crosley 52, 5-50, Band Box 601, Northome Model X, Freed Eismann 40, Dayfan OEM7, and others. Send SASE.

L. S. Colebank, 742 Albany Drive, Bismarck, ND 58501

FOR SALE: Westinghouse Rad, III-A, Radiola III, Crosley transformers, tubes from early 20's, all in good working condition. Will buy or trade above for Radiola R.S.

Bud Bedker, 66 Cloverside Court, West Seneca, NY 14224

FOR SALE: Radios, speakers, tubes, parts, service/data manuals, test equipment, "B" Elms, Magazines, AK sets and parts, etc. Eight page list 2-84, \$1 + SASE.

Frank Krantz, 100 Osage Avenue, Somerdale, NJ 08083

FOR SALE: 1927 Neutrowound; Tuska 224, Superdyne, Jr., and rare TRF model; Aeriola Sr. (mint), with early good WD-11, Clapp Eastham HR. Grebe Cr-9 (very clean), AK 19, Magnavox Tube Amp..

John E. Drake, 23 East Wharf Road, P.O. Box 942, Madison, CT 06443

FOR SALE: Magnavox Jr. (1926 square oak cabinet, exc, untested, \$85 (single dial tuning similar to VR pg. 99). RCA 114 (1933, compact, Exc, untested), \$35. Westinghouse WR-8 (1931, grandfather's clock, good works), \$80. (Grandfather's clock radio can't ship.) Also, books and tubes. Send SASE (large 2 stamp) for complete and up-to-date photo list.

Ron Boucher, 376 Cilley Road, Manchester, NH 03103

WANTED: Federal 59 cabinet, good or bad. Paragon A2 or 10R amp; DeForest DT-800 2-tube amp.; DeForest RJ-5 detector; info. on "The Radio Girl" — Vaughn DeLeath — books, pictures, etc.

George Potter, 238 Village Drive, Lewisville, TX 75067

WANTED: AK Model 9 breadboard; WD-11 tubes; instructions for Supreme Model 333 Radio Analyzer and for Supreme Model 89 tube tester; Victor Crystal set and Howe Crystal Set.

Erich E. Brueschke, 314 N. Lincoln, Hillsdale, IL 60521

FOR SALE: Large list of radio & wireless magazines, catalogs, and servicing info, surplus to my collection. 1915-1930's "Wireless Age," "QST," "Radio News," and many more. Send long SASE for list.

V. Shea, 6 Rocky Ridge Road, Easton, CT 06612

FOR SALE: Murad Ma-13 with loop antenna, Oard Model AR-10, Oard Phantom Model B, TRIO-TRON, Hammarlund Roberts Hi-Q, Priess Straight 8 with loop antennas, Jordan Special TR7.

Joe Horvath, 522 Third Street, San Rafael, CA 94901

FOR SALE: Scott Philharmonic in cabinet with 15" speaker and spare power supply. Also Jacobs wind generators.

WANTED: Zenith, Par-Mak 6 volt radios.

E. Phillip Perry, 2301 West 18th, Scottsbluff, NB 69361

WANTED: Any Magnetic pickup that will fit a Capehart 400 Series set. Anything similar to the one pictured in Riders #10. (Capehart, pg. 33.)

Peter Yanczer, 835 Bricken Place, St. Louis, MO 63122

HELP: Need remembrances and vignettes from early BCL/SWL/Hams or communications receivers used through WWII. Must be for general coverage sets. Items from past employees of Collins, Halli, National and Hammarlund especially sought. For a pictorial history of the development of communications receivers (1920-1941).

Bill Taylor, Box 455, Unionville, PA 19375

WANTED: To buy or trade early TV sweep generator, marker generator and other test equipment. Looking for any pre-war TV sets of kits.

Cash or good trading items for any of the above.

Jack Davis, 63 Midchester Road, White Plains, NY 10606

COMING EVENTS

NOTICE: Next Swap/Sell Meet will be the second Sunday in January at Renningers Flea Market, Adamstown, Pennsylvania. Just north of Reading-Lancaster interchange of Pennsylvania Turnpike. Snow date the following Sunday. For details, call:

Allen Kuykendall, (215) 367-6229.

NEW ENGLAND STEAM AND WIRELESS MUSEUM — TILLINGAST ROAD, EAST GREENWICH, RI.

3rd weekend in April. Friday and all day Saturday. Speakers, trunk sales and auction.

ARCA Yearly National Meet, see page 7 for details.

THE RESTORATION CENTER

by Jim Troe

Some answers to earlier questions:

A2/83-10

An "AM Broadcaster" that will play a tape recorder, record player, or a radio through your antique radio is available (\$25.00 plus 2 pound postage) from H. Brams, 2427 Durant No. 4, Berkeley, CA 94704.

A3/83-1

New solder joints can be dulled with a small "pencil-like" wire brush or typewriter eraser, or use Q-tip with diluted sulphuric acid very, very carefully *to solder only*.

A3/83-3

Magnavox Lion Decals can be obtained from Magnavox Parts Division, Magnavox Consumers Electronics Co., P.O. Box 28, Greenville, TN 37743 (Part No. 1713470001); or Magnavox Parts Division, 2649 Maricopa Street, Torrance, CA 90505 (Part No. 171347-1).

A3/83-6

Brass screw heads (also bronze or copper) can be blackened to a gun metal appearance by using "Brass Black Metal Touch Up" from Birchwood Casey, Eden Prairie, MN 55344 (ask for catalog BB2).

A3/83-7

Authentic grill cloth can be obtained from junker consoles. Substitutes can be obtained from fabric stores (drapery or upholstery material). "Radio Age" sells new authentic grill cloth. Samples for \$1.00. (636 Cambridge Road, Augusta, GA 30909)

A3/83-8

The closest thing to pre-glued veneer that has turned up is sold by the Woodworkers Store, 21801 Industrial Boulevard, Rogers, MN 55374 (\$1.00 for catalog). They sell flexible veneer (that can be applied to even curved surfaces) and sheet hot-melt adhesive. This is placed be-

tween the veneer and surface to be veneered and ironed with an ordinary household iron.

Some new questions:

Q4/83-1

Does anyone do general machine work for reproduction of one-of-a-kind parts?

Q4/83-2

Where can one obtain the leatherette cloth used on the Radiola 24, etc.?

Q4/83-3

Where can one obtain instructions and material for plating metals?

Q4/83-4

Are there any books relative to collecting crystal radios?

Q4/83-5

On some Scott radios there is a front panel multi-colored translucent screen onto which the dial and meter are projected. If missing, any ideas how to color a replacement piece of plastic?

The following new listings for items or services have come in recently:

Renaissance Radio

Bill Taylor

Box 455, 1054 Wawaset Road

Unionville, PA 19375

(Tubes, parts, sets, repairs)

Trendlines

170 Commercial Street

Malden, MA 02148

(Stains, color charts, tools, etc.)

Antique Electronic Supply

1725 W. University

Tempe, AZ 85281

(\$1.00 for catalog of tubes, transformers, coils, lamps, tools, speakers, chemicals, components, books, etc.)

I must emphasize that I pass on information received from ARCA members. I do not have time to check out all of the companies listed, or the answers provided.

Antique Television Topics

The Round-up

by
Kenneth L. McIntosh

Television collectors, although a rather new breed, seem to be scattered in different parts of the country. They have never assembled as a separate group and seem to constantly change in numbers, locations and interests. It is time that those who are known and recognized as interested in the hobby are listed and counted.

Some men interested in the communication field like to have a conversation piece to compare with their regular hobby but one old unique television receiver does not make a collector. Some bought old television receivers because they thought they would be worth a lot of money in a short time. When it did not happen they got rid of them. When some see one at a cheap price, they cannot resist a bargain. Some like to work on them for old times sake. Some are just accumulators of everything. Some like the cabinets but also care how the inside looks. A real collector is all of these things and knows the history and a story about each receiver.

Dr. Edmund Taylor has a new prefix to his name. He certainly has been busy in the last few months. Mallory is lucky to have a man like Ed who continues to study the field of science even if he has to correspond across the Atlantic to do it. His Doctorate thesis is all about Ed's simple one L.E.D. one photocell scanning disc television transmitter and receiver that he designed.

Arnold Chase with his persistent search for early television material has filled his warehouse even though much of his time is spent in managing his radio station. Sorry

about losing that big one, Arnold.

Robert Lozier, one of the first collectors to make a scanning disc television that works, is now interested in an early projection receiver. When he is not working on his new home he takes time to search for additional material.

Ed Reitan, who works for ITT in California, finally worked back into mechanical scanning when he got an early Western scanning disc receiver with 45 holes that was made in Chicago. Ed first started with color sets.

Richard Brewster, who works for Westinghouse in Pittsburgh; has been experimenting with early television for some time. He restored a transmitting and receiving Short-wave and Television drum scanning pair and even picks his transmissions off on tape and plays it back. He completely rewired a General Electric model 225 and picks up current broadcasts on it. His Marconi television receiver from England won best of show at a Louisville meet several years ago.

Bill Russel, an engineer in California, has been sort of quiet these days but he may still have a Jenkins and a Western scanning disc set that he picked up in Pittsburgh if his radio collection has not crowded them out.

Tom Burgess won the best of show at Louisville a couple of years ago with a Western receiving disc demonstration. He was in Baltimore on business and spent a couple of hours here at the house. Tom, who invented a power supply for lassers, now has about fifty employees and is very busy in Arkansas.

Ron McClellan, rehabilitating an old mansion in West Chester, Pa., has lugged those early RCA console models around everywhere he moves. This will be the last change. Am I right, Ron?

Dave Clellan in Reihold, Pa. still has a giant Dumont. When you press a button the television tube rolls right at you. His Meissner oscilloscope type receiver is the first one I have seen with a factory made wooden cabinet.

Ken Greenberg is still looking for a projection set.

Eric Maul is starting with an RCA 630.

Willis Randolph is looking for a See-All disc scanner.

Mac McLeod started with nine post war sets nine years ago.

Charles Newcomer has switched his interest to books.

Gary Hough was finding things a little slow when I talked to him.

Ford Mitchel is television hunting in Texas.

Thomas Pfeiffer wants all the early post war sets.

D'Arcy Brownrigg is branching into television in Canada.

Larry Babcock gave a very interesting presentation on the part airplanes played in growth.

Alvin Heckard was interested in the Philco Predicta.

Other collectors who have indicated an interested in television are: John Cocoran — Ill.; E. J. Gobrect — Pa.; Don Johnson — Ind.; John Loski — Pa.; A. Smith — Ma.; Jack Rhodes — B.C., Canada; Roger Faut — Pa.; Thomas Pfeifer — N.Y.; M. Young — Ark.; Lon Divid — N.Y.; George Gell — Ohio; Art Kingsley — N.Y.; Norm Messerschmidt — My.; Dave Fuller — N.Y.C.; N. Deener — Va.; Grey McLaughlin — Pa.; Ken Miller — Cal.; Joseph Butterfield — N.J.; Bob Grasso — Fla.; Dave Valentine — Pa.; Ken Monnier — Ohio; R. Zelenack — Cal.; Jack Nelson — N.Y.; Nicholas Krakovsky — N.Y.; Jeffery Kadet — My.

There are probably just as many more interested in television collecting and to all of them I say the best of luck.

The Smithsonian Museum has the entire Dumont Museum collection of early cathode ray televisions and several mechanical scanning disc models from different makers. Most of them are in the basement gathering dust.

The Antique Wireless Association has some early television artifacts stored away until it is appropriate to bring them out. After all you do not mix apples with oranges, do you?

The Henry Ford Museum in Dearborn has a Jenkins transmitting and a cute little General Electric octagon disc receiver from Schenectady.

The New England Museum of Steam has a Shortwave and Television set and a homemade large holded disc.

The Dr. Muchow Museum has an early Western scanning disc model and a Globe disc scanner.

The John Caperton Museum has a slotted disc and drum combination scanner receiver.

The ITT Museum in Ft. Wayne, Ind. is searching for Farnsworth memorabilia.

Robert Base, who lives here in Baltimore, wrote an article for the "Sun" paper some time ago. It was entitled "I Remember When," all about being at the Jenkins studio in Washington and receiving programs on his 120 hole scanner that was later converted to lense and crater tube by the local sales and service dealer. That, now, has a nice space in my collection. Robert has given up televisions and now collects trains.

Rodney Schrook built a television camera from scratch. That got him interested and now he wants a 7" National to experiment with.

Jack Davis, in addition to his interest in a couple of hotels, is writing and editing television news in the Antique Club of America bulle-

tin. He is restoring an early Dumont and helped write a television article in the Sunday edition of the Gannett Westchester newspaper.

Stan Jacobs, operating a business in New York City, has a chance to be in a location where commercial television began. He runs across a lot of old sets in the course of his work. We look forward to what he will have to offer at the Antique Wireless annual meeting in September at Canadagui, N.Y.

Tad Drogoski is trying to bring back the old days with Perdue when he received disc hole transmissions with a cathode ray tube. Still looking for 1200 RPM motors. I know where there are some, but they are very high priced.

James Tawes is building his first hole disc scanning set and Chicago is a good place to find the parts one needs.

George Gerstman, in addition to being a lawyer, is very interested in television receivers before 1940.

J. P. Bonne, Sr. is still looking for a meter that goes in a National field model 7" television receiver. In these models the speaker was taken out of one side and replaced with a meter with both A.C. and signal strength. They had a handle on both sides so that they could be carried around.

Carleton Sarver, a photographer in New York City, gave up his collecting. He had the same problem the rest of us have. Room and space in New York is expensive and televisions do take space.

Charles Seidel in Grant Pass was probably the first to accumulate a large group of early television sets. I guess he sold them all as I do not see his ads anymore.

Dr. James Chisman was going strong with his collecting in Carolina, but I believe he has lost interest lately.

Kent Warner, who lives in Los Angeles in an apartment that once belonged to Richard Dix, the old-time

movie star, gave up his collection including the RCA TRK sets that decorated his living room. His collection was pictured in an edition of the TV guide.

Paul Thomsen is out in California now and is an active ham radio operator. He still remembers the days he spent with Jenkins on disc television experiments at Chesapeake Avenue, Washington, D.C.

Charles Hartman, who founded the Philadelphia Battery Company which later became Philco, is still well and hearty and draws maps of New Jersey. None of the tapered pulley speed controlled motors used with his scanning discs have ever been found.

Hollis Semple Baird, who designed the Shortwave and Television drum scanner, still collects trains near Boston.

Leo Hruska, who transmitted 45 hole images from Chicago, died last spring. Valadamir Zworykin, the designer of the Iconoscope, also died last year.

Emmett Smith, after a lifetime of interest in radio, has now become an expert at designing, building and repairing amplifiers for scanning disc pulses.

George Sheirs in California is writing a book on the history of television.

Warman's Antiques and their Prices will include television as one of their categories in their 18th edition.

Thanks to Stephen Chamberlain for inviting us to demonstrate mechanical television at the Society of Motion Picture and Television Engineers annual meeting even though we had to decline.

We also thank Jim Fred, J. W. F. Puett and Don Patterson for printing some of this information in the past.

If you want to receive future correspondence of this type, send name and address, a brief comment about your collecting or collection with \$1 for material and postage.

Radio People at the Antique Wireless Association Meet — 1983 —



*Chuck Belsford, Mel Comer,
Gilbert Houck*



*John Williams, Mel Comer
John Caperton, Barney Wooters*



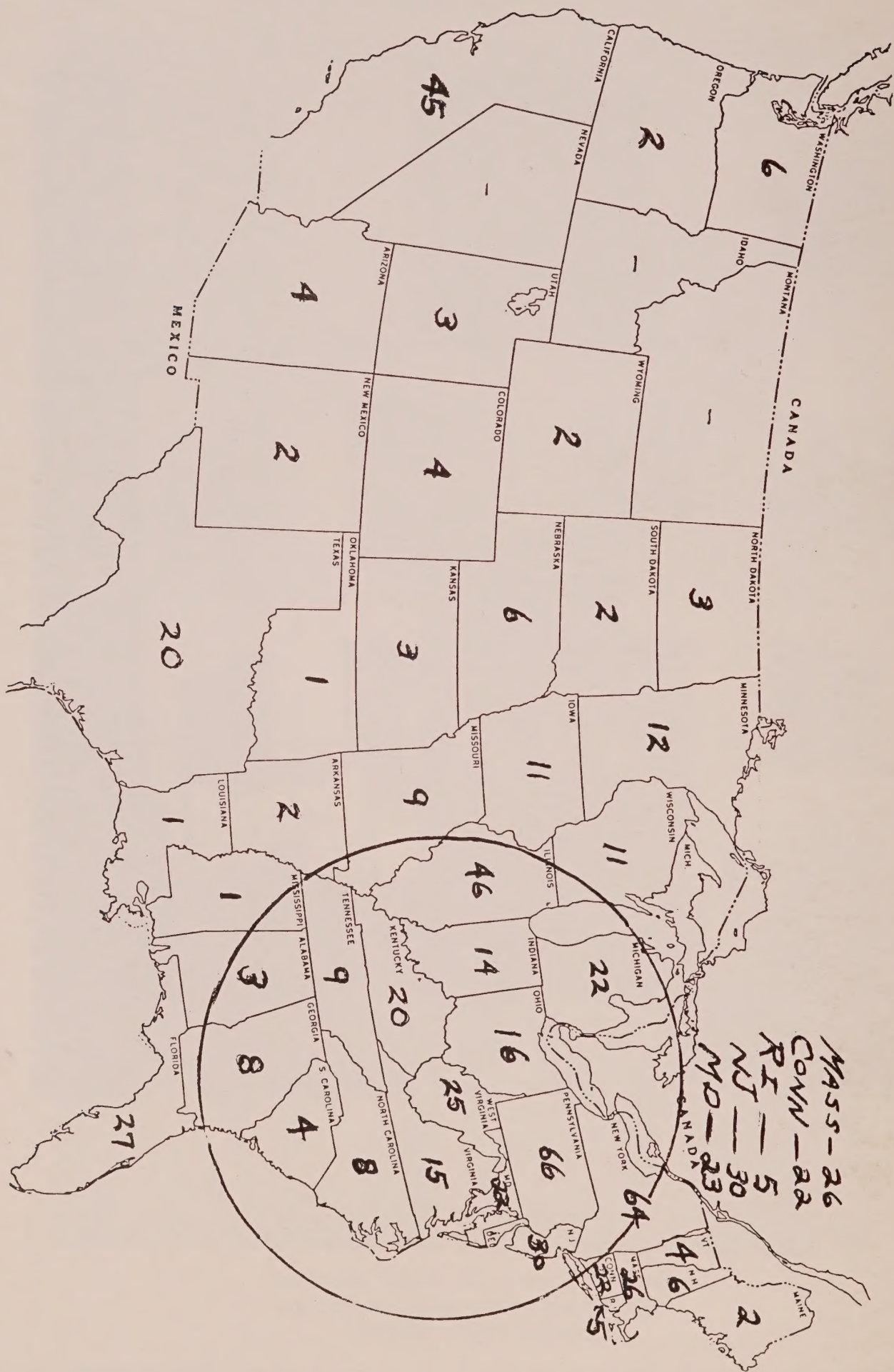
Leonard Wade, Betsy Comer



Carole Muchow, Suzanne Phillips



Best of Show — Dr. Ralph Muchow
RCS Stratosphere Altitude Record
Balloon Flight Display



MASS-26
CONN-22
RI-5
NJ-30
MO-23